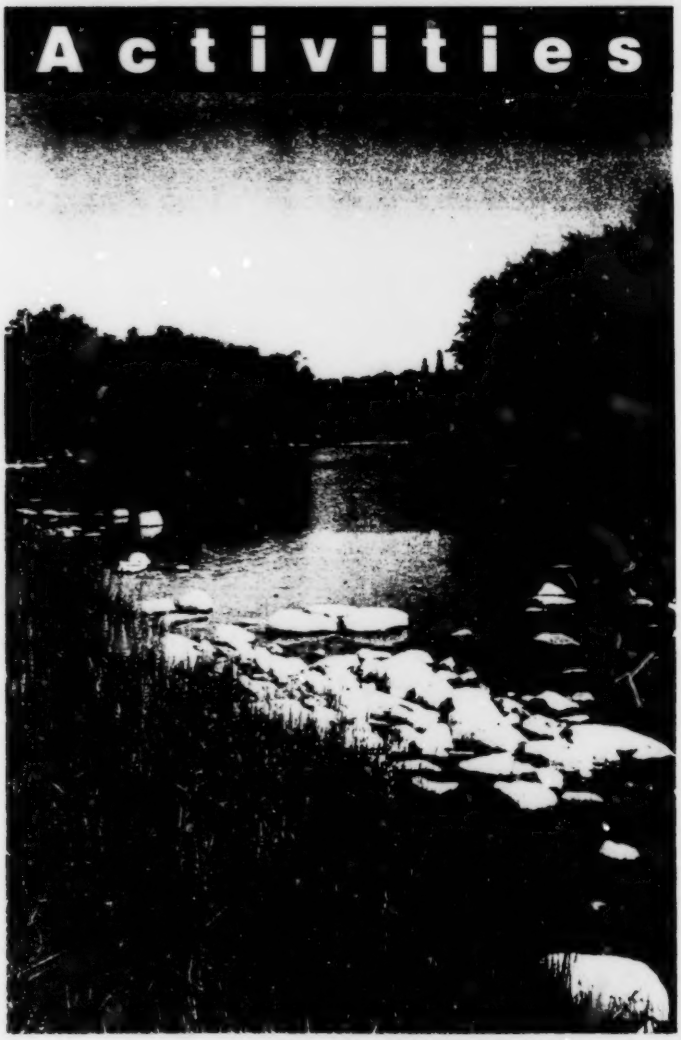
Saskatchewan
Parks and
Renewable
Resources

Hon. Lorne Kopelchuk
Minister

Fish & Wildlife Development Fund

Activities



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Minister's Message

The Fish and Wildlife Development Fund (FWDF) has a mandate to ensure the continued survival of Saskatchewan's unique and diversified fish and wildlife populations. It is funded by a portion of the revenue generated through the sale of hunting and angling licences. Invaluable assistance is provided by volunteer citizens who help to restore and protect our fish and wildlife habitat.

In Saskatchewan, there are many competing uses for land and water resources which provide fish and wildlife habitat. As a result of agricultural development, urban expansion and industrial development, the basic needs of fish and wildlife have been neglected.

Fish and wildlife are a valuable heritage. In addition to income generated through fishing, hunting and trapping, these resources provide significant cultural, recreational and educational benefits to the people of Saskatchewan. In order to continue enjoying the benefits of our fish and wildlife populations, there is a need to protect and improve the habitats which support them.

Saskatchewan's resource users requested the government to establish a special fund which would help maintain the fish and wildlife populations. The provincial government responded by introducing the Wildlife Development Fund in 1970. In 1984, a fish enhancement component was added. The purpose of this program is the protection of key fish and wildlife habitats through land acquisition, habitat protection agreements and habitat enhancement projects.

This report describes specific projects undertaken by the Fish and Wildlife Development Fund for the conservation, restoration and enhancement of fish and wildlife habitat in Saskatchewan. Without the co-operation, dedication and enthusiasm of the project proponents and volunteers, many of these projects would not have been carried out.

Hon. Lorne Kopelchuk
Minister, Saskatchewan Parks
and Renewable Resources

Fish & Wildlife Development Fund

1989-1990

Activities

WildlifeComponent

Funding

The Fish and Wildlife Development Fund (FWDF) was established in 1970 at the request of Saskatchewan sportsmen who recognized that the continued loss of wildlife habitat in the farmland and parkland areas of the province would have serious effects on wildlife populations. Since its inception, the FWDF has been successful in purchasing some 100,000 acres of excellent wildlife habitat. The annual allocation to the FWDF has increased from $171,000 in 1972 to $1.3 million in 1989. This now represents 30 per cent of the revenue generated by the sale of hunting licences, the habitat certificate and trapping licences.

The 1989-90 finances of the FWDF are outlined in Table 1. Note that the expenditures of approximately $1.6 million almost perfectly matched the revenue including that obtained from interest permits and leases. The approximately $2 million balance persisted but will be partially utilized by planned 1990-91 expenditures.

Co-operation between the Saskatchewan Wildlife Federation Habitat Trust Fund and the Fish and Wildlife Development Fund has been such that since 1980, the Habitat Trust Fund has assisted Saskatchewan Parks and Renewable Resources (SPRR) in the purchase of 11 parcels of habitat involving 2,000 acres. The Saskatchewan Natural History Society (SNHS) was a joint partner in two of these purchases.

II Habitat Acquisition

Critical upland habitat acquisition, notably for white-tailed deer, remains the priority of the FWDF (Fig. 1). This however, is not to the exclusion of habitat for other species.

The record-high 11,220 acres of land purchased over the past year (Map 1, Table 2) is primarily important for white-tailed deer but also supports habitat for other game and non-game species (Fig. 2). These purchases bring the total holdings of wildlife lands to 101,200 acres. These lands are primarily located in the parkland and forest fringe areas (Map 2).

FWDF lands provide feed for wildlife.

III Land Management

In 1989-90 the FWDF spent $31,700 on habitat enhancements, particularly on the seeding or rejuvenation of 1,140 acres to forage crops. The Wildlife Landowner Assistance Program was able to use 300 tons of hay from FWDF lands to supplement their deer and elk feeding programs this past year.

Additional habitat inventory expenses of about $20,000 brought this component of the budget up to three per cent of total expenditures (Table 1, Fig. 1).

IV SUPER Program

The long-standing co-operation between SPRR and the Saskatchewan Wildlife Federation on habitat conservation matters led in 1989 to the formation of the SUPER (Saskatchewan Upland Protection, Enhancement and Restoration) Program. SPRR and the SWF were joined in this undertaking by Wildlife Habitat Canada and the Saskatchewan Natural History Society. The objective of the new partnership is to better co-ordinate **existing** upland habitat conservation in the agricultural region and to devise new approaches to this task.

"Wildlife Tomorrow" has been developed by the SWF as the first new product of the SUPER Program, combining existing SWF "private stewardship" programs such as Acres for Wildlife and Dual Habitat. The new, amalgamated program will encourage landowners to conserve at least a few acres of wildlife habitat on their land. It also provides public recognition for those who enter into a gentleman's agreement with the SWF to do so. The sharp-tailed grouse (prairie chicken) has been chosen as the logo for Wildlife Tomorrow because of its close association with native habitat throughout agricultural Saskatchewan.

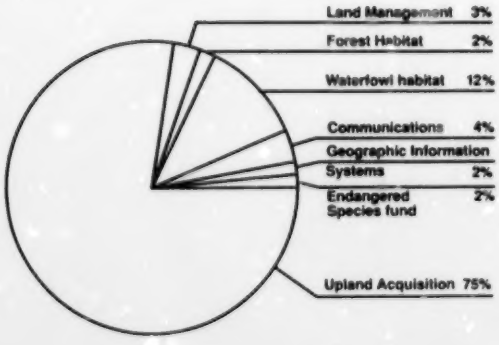


Fig.1
Wildlife Component Fiscal 1989-90 Expenditures

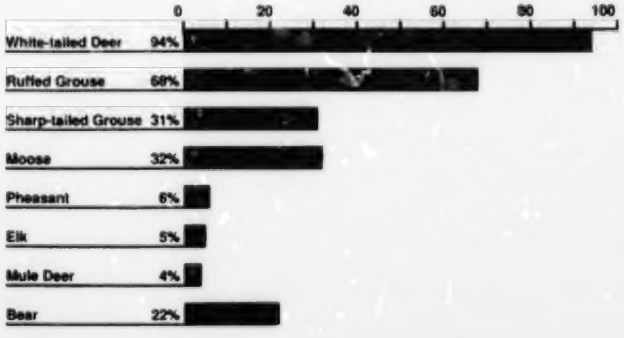


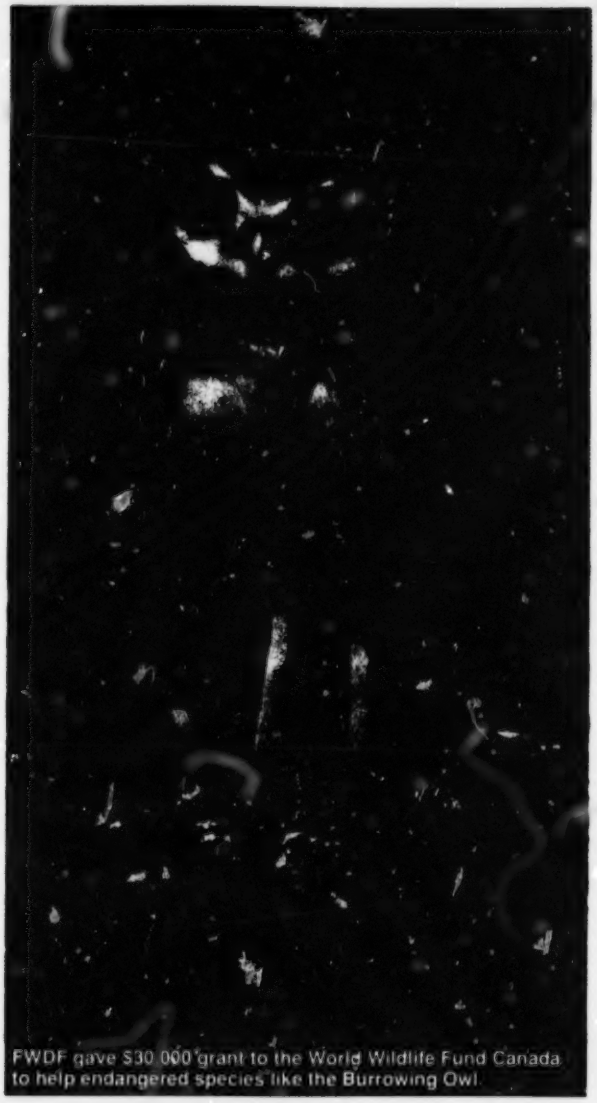
Fig. 2
Species Rating of Wildlife Lands Acquired in Fiscal 1989-90

Saskatchewan Parks and Renewable Resources contributes FWDF dollars to the communications component of the "Wildlife Tomorrow" program. These and other communications expenditures in 1989-90 totalled $63,044, four per cent of the budget (Table 1, Fig. 1).

Additional information on the "Wildlife Tomorrow" program is available from the Saskatchewan Wildlife Federation, Box 788, Moose Jaw, Saskatchewan S6H 4P5.

V Endangered Species

In 1989 an agreement signed by Saskatchewan and the World Wildlife Fund created the Saskatchewan Endangered Species Fund (SESF). The SESF is a joint, five-year project of Saskatchewan Parks and Renewable Resources and World Wildlife Fund Canada to stimulate the protection of threatened and endangered wildlife in Saskatchewan. The SESF will grant money to individuals or agencies conducting projects which will assist the recovery of these threatened and endangered species.



FWDF gave $30,000 grant to the World Wildlife Fund Canada to help endangered species like the Burrowing Owl.

The Saskatchewan Endangered Species Fund is fuelled by a $30,000 annual grant by the FWDF to the World Wildlife Fund Canada (Fig. 1), which is matched by World Wildlife Fund dollars. The SESF is administered by Saskatchewan Parks and Renewable Resources and the World Wildlife Fund and is to be used solely for projects designed to conserve endangered wildlife in Saskatchewan.

Types of projects which will be considered include identifying critical habitat, population surveys and habitat enhancement projects. The SESF is currently supporting work on the burrowing owl, prairie rattlesnake, peregrine falcon and piping plover. The FWDF also spent an additional $1,175 on the purchase of enclosures to help protect ferruginous hawk nest trees.

VI Waterfowl Habitat

Waterfowl habitat expenditures totalled $185,000 (12 per cent of FWDF expenditures) last year, largely in association with the Prairie Pothole Project, a pilot project of the North American Waterfowl Management Plan (Fig. 1). The project is evaluating various incentives and techniques for preserving and enhancing waterfowl habitat on private land in the Redvers area of southeastern Saskatchewan.

The project is operated by Saskatchewan Parks and Renewable Resources with assistance from the Canadian Wildlife Service. The major funding partner of the project is Wildlife Habitat Canada. Additional co-operating agencies include the Redvers branch of the Saskatchewan Wildlife Federation, Saskatchewan Rural Development and PFRA. Diminished Parks and Renewable Resources responsiblity for this project is anticipated in 1990-91 in connection with the rise of the Saskatchewan Wetland Conservation Corporation.

The primary method for preserving wildlife habitat has been leasing of native pasture. Approximately 14,000 acres have been leased, representing 80 per cent of the good quality native waterfowl nesting habitat in the R.M. of Antler. Enhancement techniques being evaluated include the planting of dense nesting cover on some cultivated sites, electrified predator fences and nesting structures. In addition, conservation farming techniques that also benefit wildlife have been promoted.

The various techniques are monitored annually to determine their effectiveness in producing ducks. These results combined with the acceptability of

various options, have already provided valuable information for planning and implementing the North American Waterfowl Management Plan in Saskatchewan.

Saskatchewan's long-standing Heritage Marsh Program also required some investment of FWDF monies in 1989-90. The $65,000 expenditure was to rectify some outstanding land assembly problems at Foam Lake Heritage Marsh, which is a "jewel" in the Heritage Marsh System. Ducks Unlimited is the capable managing partner of the Heritage Marsh chain, supported by SPRR and the other partners, the Saskatchewan Wildlife Federation, the Saskatchewan Natural History Society and Wildlife Habitat Canada.

Road closures help protect the moose population, in particular, from hunters

VII Forest Habitat Management

A new era of wildlife-sensitive timber management in Saskatchewan is taking shape following the announcement of the co-operative Saskatchewan Forest Habitat Project in 1989 at the Saskatchewan Wildlife Federation annual convention. Participants in the project include Saskatchewan Parks and Renewable Resources, Weyerhaeuser Canada Ltd, Wildlife Habitat Canada and the Saskatchewan Wildlife Federation. Saskatchewan Parks and Renewable Resources is investing some FWDF money as well as regular staff in the project; $7,500 was spent in fiscal 1989-90.

Project staff have compiled a list of all forest wildlife species and selected six of these to key on during the program. These species -- moose, woodland caribou, beaver, snowshoe hare (bush rabbit), the ovenbird (warbler), and the pileated woodpecker -- were chosen based on their economic and recreational importance, or their value as indicators of certain forest habitat types.

The habitat requirements of these species will be carefully investigated and the findings, along with wood market conditions and the Provincial Forest Inventory, will then guide co-operative timber harvesting decisions. A computerized Geographic Information System (GIS) will be used to help assimilate all the information that will be gathered in this new approach to forest management.

By the end of the project's five-year life span, wildlife habitat requirements of the indicator species will be fully integrated into the cutting plans for the entire Weyerhaeuser Forest Management License Agreement area. This will benefit all forest wildlife because the indicator species represent a full range of forest habitat types. Other companies and agencies are expressing interest in this refined approach to forest management and it will likely be extended to other areas of the Provincial Forest.

Approximately $30,000 in FWDF money was also spent on forest road management in 1989-90. The forest road closure program initiated in 1983 has, with the co-operation of forest harvesting companies, resulted in the closing of approximately 1,250 small roads and trails to conventional vehicle traffic while leaving alleys for ATV's and snowmobiles. These closures affect approximately one-quarter of the road network in the Provincial Forest. They have protected moose populations in particular from persistent hunting from roads and are allowing the roads to regenerate to productive habitat. Moose and other big game populations are responding well to this program.

Forest habitat management expenditures for 1989-90 represent two per cent of the FWDF budget. (Table 1, Fig. 1)

VIII Geographic Information System

Finally, the FWDF invested two per cent of its 1989-90 budget (Fig. 1) on a computer system that will greatly increase the department's ability to handle and use habitat inventory information, and thus manage habitat. This Geographic Information System will be developed for the agricultural (southern) half of the province during the next few years in co-operation with other segments of Saskatchewan Parks and Renewable Resources and other provincial agencies and organizations that are also starting to utilize this powerful new technology. It will also be linked to the Geographical Information System to be formed in conjuction with the Forest Habitat Project, ultimately providing provincewide coverage.

1989-90 Financial Summary*

(Wildlife Component)

I. Summary

Total Revenue	$1,598,783	
Total Expenditures	1,594,614	
Revenue over Expenditures		**$4,169**

II. Funds Available

Revenue (Net):		
Allocation (licence sales)	$1,326,489	
Interest	232,140	
Permits	26,164	
Leases	13,990	
Total Revenue		$1,598,783
Carryover from 1988-89		2,217,186
Total Funds Available		**$3,815,969**

III. Expenditures (Net)

Land Purchases (11,220 acres)	$1,184,446
Inventory and Management	51,262
Communications	63,044
Miscellaneous	1,944
Pothole Project	120,000
Leases	11,929
Forest Road Closures	30,358
Sask. Endangered Species	31,175
Heritage Marshes	64,543
Geographic Info Systems	28,413
Timber Wildlife Management	7,500
Total Expenditures	**$1,594,614**

IV. Balance

$2,221,355

* **Unaudited Figures**

Map 1

Fish and Wildlife Development fund Wildlife Habitat Purchases 1989-90

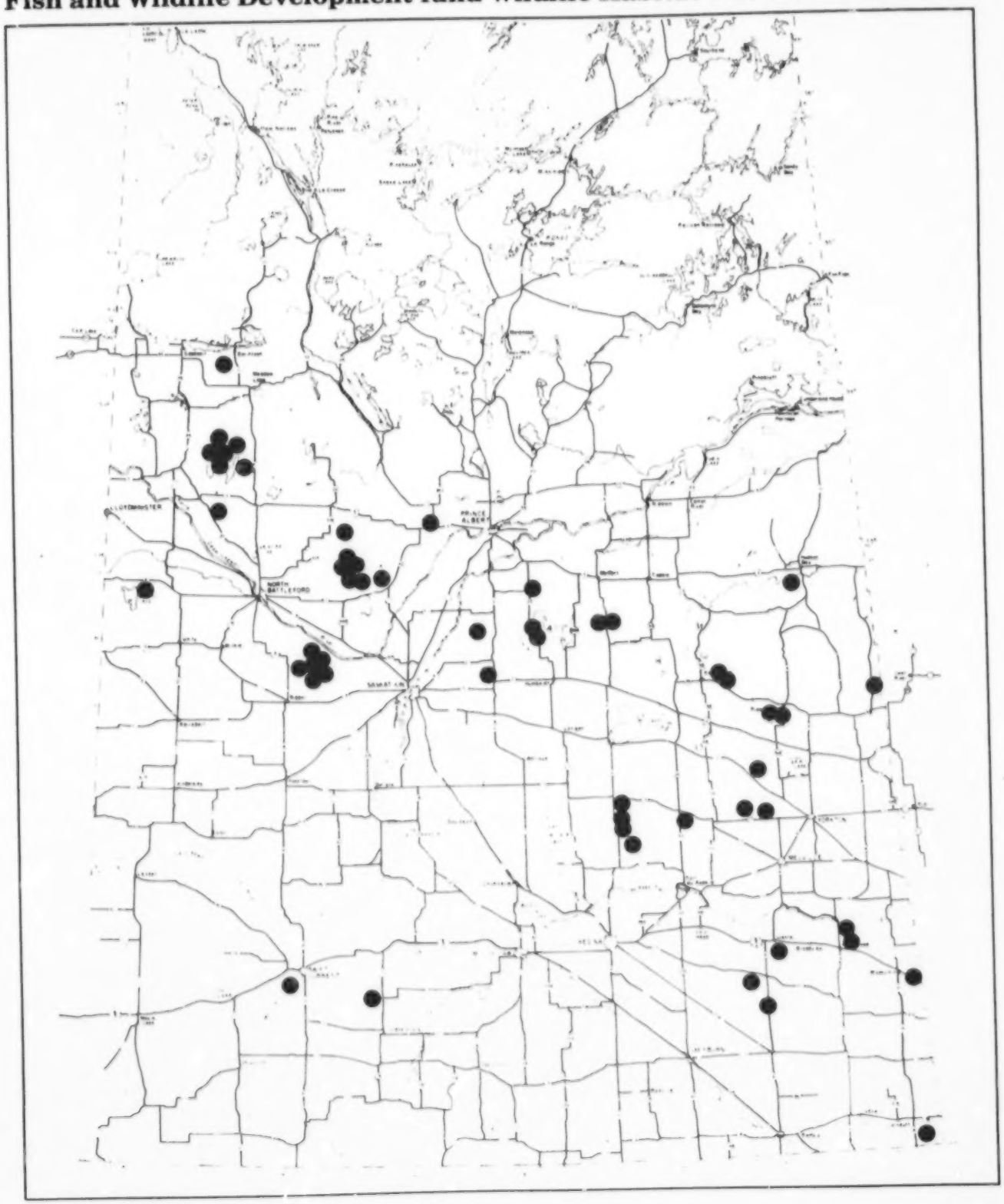


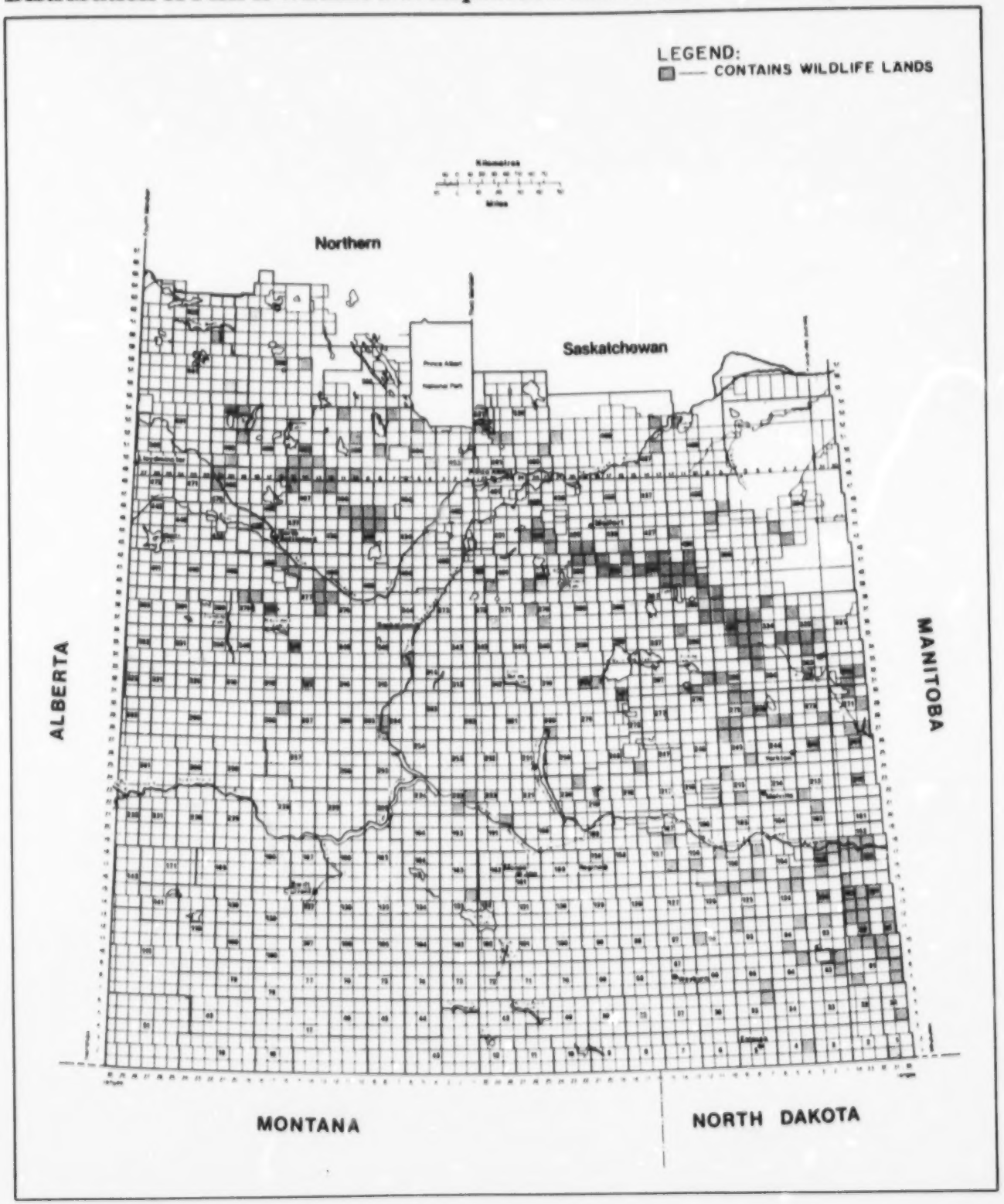
Table II (Map 2)

Location and Extent of Wildlife Habitat Lands Purchased in 1989-90

	Location	Hectares	Acres	Locale
1.	SE 28-37-W2	65	160	Peterson
2.	NW 5-50-4-W3	64	159	Shellbrook
3.	W1/2 7-50-21-W3	130	320	Turtleford
4.	NW 36-46-11-W3	68	168	Mayfair
5.	PTN 35-13-8-W3	199	492	Hodgeville
6.	PTN N 1/2 1-16-7-W2	32	80	Grenfell
7.	NW 18-39-12-W3	65	160	Struan
8.	NE 22-1-31-W1	65	160	Gainsborough
9.	NE 27-13-8-W2	65	160	Windthorst
10.	NE 23-44-25-W3	65	160	Neilburg
11.	SE 33 & SW34-38-13-W3	125	308	Struan
12.	NE 13-30-8-W2	65	160	Insinger
13.	SW4-17-1-W2	65	160	Whitewood
14.	N 1/2 21 & S 1/2 28-54-19-W3	257	636	Turtle Lake
15.	NE 8-46-8-W3	65	160	Blaine Lake
16.	NE 15-9-30-W1	65	160	Maryfield
17.	NW 31-38-13-W3	62	154	Struan
18.	SW 31-26-13-W2	65	160	Kelliher
19.	NW 22-56-20-W3	65	161	Loon Lake
20.	SE8-36-1-W2	65	160	Norquay
21.	W 1/2 30-53-19-W3	130	320	Turtle Lake
22.	W 1/2 12-46-9-W3	128	316	Blaine Lake
23.	SW 13-46-9-W3	53	132	Blaine Lake
24.	NW 24-46-9-W3	65	160	Blaine Lake
25.	SE 34-49-12-W3	66	164	Spiritwood
26.	SW 20-14-14-W3	65	160	Swift Current
27.	NE 26-27-9-W2	65	160	Parkerview
28.	NW 1 & LSD 4 & 5 of 12-26-17-W2	96	237	Leross
29.	SW 12-38-10-W2	57	140	Kelvington
30.	NW 4-53-19-W3	65	160	Turtle Lake
31.	NE 13-41-28-W2	54	134	Cudworth
32.	NE 16-38-13-W2	65	160	Struan
33.	NW 12-38-10-W2	65	160	Kelvington
34.	NE 3-29-13-W2	65	160	Bankend
35.	SE 30-35-7-W2	65	160	Ketchen
36.	SE 9-54-19-W3	64	158	Turtle Lake
37.	PTN NE 53-40-23-W2	42	103	Middle Lake
38.	PTN SE 4-41-23-W2	62	152	Middle Lake
39.	NE 17-30-17-W2	65	160	Raymore
40.	SE & NW 32-41-18-W2	91	225	Pleasantdale
41.	SW 21-38-13-W3	63	156	Struan
42.	NW 26-17-2-W2	64	158	Whitewood
43.	N 1/2 22, SE 22, Sec 23, S 1/2 26, S 1/2 27 & PTN28-53-18-W#	760	1,879	Turtle Lake
44.	LSD 15 of 11-15-10-W2	16	40	Candiac
45.	PTN N 1/2 7-44-4-W2	15	36	Hudson Bay
46.	SE 7-30-17-W2	64	158	Raymore
47	LSD 15 & 16 of 12-41-16-w2	33	81	Lac Vert
48	NE 8-45-10-W3	64	159	Hafford
49	NE 7-45-23-W2	64	158	Crystal Springs
50	SE 21-38-13-W3	65	160	Struan
51	SE 28-38-13-W3	64	157	Struan
52	SE 17-62-18-W3	64	159	Dorintosh
53	LSD 3 & 6 of 9-26-7-W2	32	80	Willowbrook
54	LSD 9 & 10 of 16-36-6-W2	32	80	Ketchen
Total		**4545**	**11,,220**	

Map 2

Distribution of Fish & Wildlife Development Fund Wildlife Lands (by township)



Fish Enhancement Component

The fish enhancement component of the FWDF encourages members of the public throughout Saskatchewan to actively undertake hands-on fisheries management projects which will directly benefit the fish resource. A portion of angling licence fees provides revenue for the program. In this way, revenue generated by the fishery is re-invested in the resource to enhance fish supplies and improve angling opportunities.

Through increasing co-operative efforts of local users and Fisheries Branch staff, a variety of projects have been developed. These have included stream and lake habitat improvements, raising fish in rearing ponds and portable hatcheries, winter aeration, trout pond development and lake rehabilitation. Each project requires a different level of hands-on effort, technical expertise, cost-sharing, planning and evaluation.

Volunteers are rewarded by the knowledge that they have improved fish habitat or access to spawning areas, or contributed to enhanced fish stocks. Co-operative projects have developed better communication and interaction between Fisheries Branch staff and local fishery users.

To the end of the 1989-90 fiscal year, a total of 85 projects have been completed. Forty-six of these have been co-operative projects with local groups.

In 1989-90, 18 new fish enhancement projects were initiated. Five of these were carried out by Saskatchewan Parks and Renewable Resources. The remaining 13 were co-operative projects.

Seven projects, initiated prior to 1989, required further development. Thirty-eight projects previously developed were operated and maintained.

Hay Meadow Creek - Velocity (stream flow) examinations help to determine habitat improvement.

1988-90 Fish Enhancement Projects

I Rearing Ponds

Young fish are raised in rearing ponds and are grown for their first summer in a predator-free environment, thereby increasing survival. An abundance of natural food in these ponds promotes good growth. The young fish are used to replenish fish stocks or establish new stocks in our lakes and reservoirs.

In 1989-90, one new rearing pond was developed at Nickle Lake near Weyburn.

Nickle Lake Rearing Pond

Nickle Lake rearing pond, approximately one hectare (2.5 acres) in size, is located seven kilometres southeast of Weyburn. The Nickle Lake fishery is stocked every second year with 500,000 - 1,000,000 walleye fry. Local residents have expressed concern over the poor walleye population and the apparent failure of the fry stocking program. A rearing pond was constructed in the summer of 1989 to improve the fishery by stocking walleye fingerlings instead of fry. Development of the pond was a joint undertaking between the Weyburn Wildlife Federation, the City of Weyburn and Fisheries Branch.

In 1989-90, eight rearing ponds were operated. These are described below:

II Aeration Systems

Fish kills occur when oxygen levels in waterbodies fall below the level necessary for fish to survive. Where feasible, artificial aeration systems designed specifically for the waterbody are installed. Air circulated within the waterbodies by compressors adds oxygen and improves water quality. Aeration systems generally operate during the winter season when an early freeze-up, prolonged cold weather and heavy snowfall may combine to reduce oxygen levels and kill fish. It can also be used during open water season to prevent summerkill. Thirteen projects are operational and another three were installed in 1988-89. Among the latter are:

Waldheim Borrow Pit Aeration

Waldheim Borrow Pit, a 0.4-hectare (one-acre) waterbody, is located within Waldheim town limits in Valley Regional Park. Waldheim Borrow Pit has been stocked with rainbow trout since 1978. Periodic winterkills have plagued attempts at providing a viable year-round fishery. The Valley Regional Park Board co-operated in the installation of an aeration system to improve the trout fishery in this park.

Wilson Lake Aeration

Wilson Lake, 25 hectares (62 acres) in size, is located 12 kilometres southwest of Springside. Managed for rainbow trout, the lake provides a popular sport fishery

Rearing Ponds

Pond	Location	Operator	1989 Walleye Production
Codette	North of Melfort	Fisheries Branch	215,300 fingerlings released into Codette
Glaslyn Reservoir	East of Glaslyn	Northern Lakes and Turtle River Wildlife Federation	28,600 fingerlings released into Turtle Lake.
Kenosee	Moose Mountain Provincial Park	Fisheries Branch	23,000 fingerlings released into Kenosee Lake.
Lake Lenore	Adjacent to Lake Lenore	Lake Lenore Wildlife Federation, Ducks Unlimited and the Robert Hopfner family	15,800 fingerlings released into Lake Lenore.
Meadow Lake	Meadow Lake	Fisheries Branch	20,500 fingerlings stocked into Atton, Greig and Miko Lakes
Rowan's Ravine	East side of Last Mountain Lake	Fisheries Branch	1,650 walleye fingerlings released into Mountain Lake
Shore	East of Big River	Fisheries Branch	10,000 walleye fingerlings released into Delaronde Lake
Swallow	North of McBride Lake	Sturgis Wildlife Federation	30,000 walleye fingerlings released into McBride Lake

in the Yorkton-Melville area. However, the lake is subject to periodic winterkills and frequent summerkills. Fisheries Branch, in co-operation with the Whitesands Wildlife Federation, installed an aeration system to maintain a rainbow trout fishery. The aeration system began operation in December, 1989.

Melville Reservoir

Melville Reservoir, 73 hectares (180 acres) in size, is located two kilometres northwest of Melville. The reservoir provides a quality walleye fishery for residents of Melville and district. Due to frequent winterkills caused by low water levels, the City of Melville and Fisheries Branch installed an aeration system to ensure ongoing success of the fishery. An additional benefit from the aeration process will be an improvement in the water quality for the City of Melville.

Aeration System Operations

The operation of 13 aeration systems installed prior to 1989 have provided moderate to good angling.

III Snow Removal

Snow removal from ice covered waters has the potential to reduce the risk of winterkill in situations where a conventional aeration system would be too costly. Increased light penetration assists plant life and improves oxygen levels in the water. Three snow removal projects were carried out in 1989-90:

Moosomin Reservoir Snow Removal

Moosomin Reservoir, 530 hectares (1,250 acres) in size, supports a pike and perch sport fishery. The reservoir is subject to periodic winterkills. Due to its size and shape, aeration is not feasible. Testing of the water in the winter of 1989 revealed low oxygen levels. This necessitated a snow removal project which resulted in improved oxygen conditions.

Helene Lake

Helene Lake, northeast of Glaslyn, supports a walleye fishery. The lake is subject to periodic winterkills. In March, 1990, approximately 11 hectares (27 acres) were cleared. The project was not a complete success as a partial winterkill occurred.

Aeration

Water Name	Location	Sponsor and/ or Participant	Fish Species	Project Results
Birch Lake	Moose Mountain Provincial Park	Wawota Wildlife Federation and Fisheries Branch	Rainbow trout	3,000 new angler days
Clearwater Lake	N of Swift Current	Kyle Wildlife Federation	Walleye, pike and perch	3,000 new angler days
Condie Reservoir,	NW of Regina	Fisheries Branch	Walleye, pike and perch	7,500 new angler days
Jackfish Lake,	Duck Mountain Provincial Park	Fisheries Branch	Rainbow trout	2,000 new angler days
Lady Lake,	NW of Preeceville Provincial Park	Lady Lake Park Development Association	Rainbow trout	3,000 new angler days
Lawlered Lake,	NW of Ituna	Beaver Hills Wildlife Federation	Walleye	2,000 new angler days
Melfort Reservoir,	SE of Melfort	City of Melfort and Melfort & District Wildlife Federation	Rainbow trout	7,000 new angler days
Nesland Lake,	W of Shellbrook	Shellbrook Wildlife Federation	Rainbow trout	2,000 new angler days
Oyama Reservoir,	SE of Regina	Fisheries Branch	Rainbow trout	1,500 new angler days
Picnic Lake	NE of North Battleford	Picnic Lake Park Board	Rainbow trout	1,500 new angler days
Scott Reservoir,	SE of Scott	Wilkie and Unity Wildlife Federations	Rainbow trout	2,000 new angler days
Steistol Lake (Hill Lake)	Greenwater Lake Provincial Park	Piwei Wildlife Federation	Rainbow trout	2,500 new angler days
Struthers Lake,	SW of Kinistino	Struthers Lake Regional Park Board	Walleye and pike	6,000 new angler days

Twin Lakes

Twin Lakes, 130 hectares (approximately 321 acres) supports a trout fishery. A snow removal project in 1989-90 improved oxygen conditions and prevented a winterkill.

IV Fish Habitat Improvement

Habitat limitations can influence the abundance of fish. Habitat needs are specific for each species and mix of species. Deterioration of critical factors can reduce the capacity of a water to produce fish. Some deficiencies can be corrected by various enhancement activities such as stream habitat improvement, lake habitat improvement and development of spawning areas. There are two advantages to habitat improvement projects. First, good habitat leads to stable fish populations and sustains fish resource use. Second, ongoing maintenance costs are eliminated which increases the funds available for other projects.

Habitat improvements were of two types in 1989-90:

(a) stream habitat improvement in Battle Creek, Fairwell Creek, Jackfish Creek and Lost Echo Creek.
(b) lake habitat improvement in Wapella Reservoir.

Stream Habitat Improvement

Battle Creek

Battle Creek is located in the West Block of Cypress Hills Provincial Park. Stream assessment in 1989 indicated opportunities for enhancement. Electrofishing revealed a good rainbow trout population in the middle (Fort Walsh) and lower reaches (Merryflat). Only a sparse population was found in the upper reaches (from the ranger station, upstream to the Alberta border). Nine Mile Creek was also studied.

The first phase of habitat improvement involved installing 30 bank covers to stop bank erosion. All covers were riprapped, and seeded with grasses. In addition, approximately two kilometres of Nine Mile Creek were cleared of obstructions. The second phase will include further habitat improvement on Nine Mile Creek. Present recommendations are to stock 5,000 rainbow trout and 2,000 brown trout every second year.

Fairwell Creek

Fairwell Creek, located 30 kilometres west of Eastend, is quite different from other Cypress Hills streams, as throughout the majority of the watershed the creek flows underground. The stream surfaces near the Frenchman Valley and flows for approximately three kilometres before joining with the Frenchman River. Only reaches with permanent waterflow were examined. Electrofishing revealed a sparse population of stocked brook and rainbow trout. No evidence of spawning recruitment was found.

Enhancement activities included installing 30 bank covers at three meanders and rerouting the stream through an old oxbow channel with well-vegetated stable banks. All enhancement work was directed to improving trout habitat. Future activities include evaluating fish passage during spring freshet, stocking rainbow and trout upstream of the bridge and stocking brook trout in beaver pools above the spawning area.

Bone Creek - Installation of overhead bank cover

Jackfish Creek

Jackfish Creek is located 10 kilometres southwest of Glaslyn. To improve the brook trout habitat, a beaver management program was implemented during the winter of 1989-90. Beaver dams are beneficial for streams if they are well spaced and not overly shallow. However, an abundance of beaver dams results in reduced stream flow with the water becoming stagnant and warm. A reconnaissance of this area will be conducted to determine if future enhancement is required.

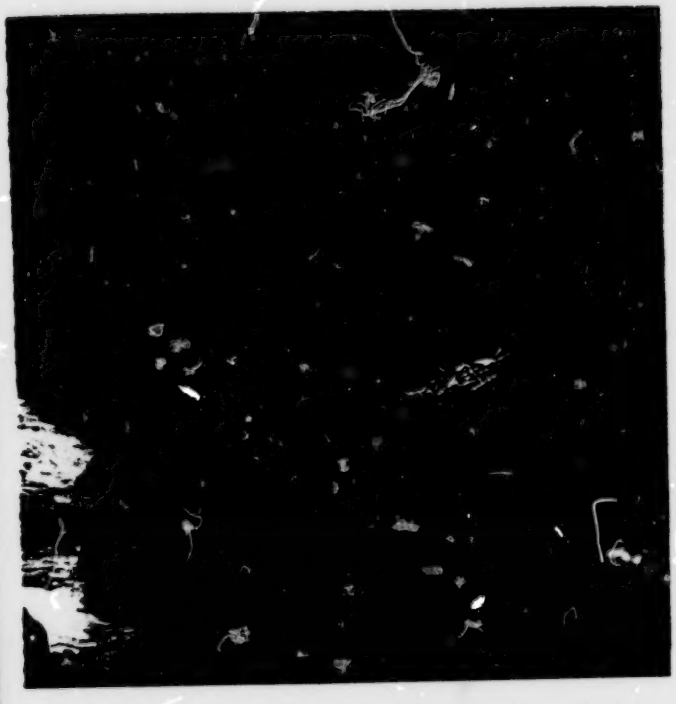
Lost Echo Creek

Lost Echo Creek is located within Nipawin Provincial Park. A reconnaissance of the creek revealed all habitat requirements for a self-sustaining fishery were present, however, access to the stream was limited. The creek was accessible by vehicle at only one location and walk-in trails were no longer open. A new walk-trail was constructed through approximately one kilometre of young jackpine and fire-killed deadfall, to provide easy access to the central reaches of the creek. These reaches have maintained a good population of naturalized trout of several age classes. The trail will

be maintained by the Cub Hills Wildlife Federation. Signs describing access will be erected and maps of the creek, including new access points, will be redrawn. No future enhancement is deemed necessary at this point.

Richardson Creek

Richardson Creek is located 35 kilometres north of Morse and flows into Lake Diefenbaker. Fisheries Branch, in co-operation with the Kyle Wildlife



Federation and the Irwin Gerbrandt family, worked this past summer to improve spawning and rearing habitat for rainbow trout. Enhancement activities included removing instream obstructions, installing drop logs to enhance cover, adding spawning substrate, installing bank covers to improve lateral habitat and narrowing the stream to improve fish passage. The Kyle Wildlife Federation will monitor the structures and maintain the fence. The intent of this project is to provide natural spawning and rearing facilities for rainbow trout from Lake Diefenbaker. (Also, see section on portable hatcheries.)

Swan River

Swan River is located within the Porcupine Hills, 50 kilometres south of Hudson Bay. A reconnaissance of the area showed degradation of brook trout habitat to be a problem within certain reaches. The Kilpatrick Fly Fishers and Flatland Fly Fishers worked with Fisheries Branch to build a rail fence in the Horse Weir area. The fence will prevent cattle from watering at the weir and destroying habitat. Population studies will be conducted in 1991 to determine a schedule for future evaluations.

White Gull Creek

White Gull Creek is located 60 kilometres northeast of Candle Lake. A habitat assessment revealed a scanty brook trout population and lack of spawning areas. A two phase enhancement project was recommended. The first phase completed in 1988 involved installing bank covers to provide cover for adult trout during spawning and to protect developing young fish. The second phase completed in 1989 involved installing spawning substrate to improve the habitat in the upper reaches of the stream. A brook trout fingerling stocking and management program will be initiated in 1990.

Lake Habitat Improvement

Wapella Reservoir

Wapella Reservoir, approximately four hectares (11 acres), is located within the Town of Wapella. Due to the lack of fishing opportunities in the area, the Wapella Pipestone Wildlife Federation, the Town of Wapella and Ducks Unlimited deepened the reservoir to create a pike and perch fishery. Future enhancement activities include providing handicapped access.

Ongoing Developments at:

Morin (Devil's) Lake

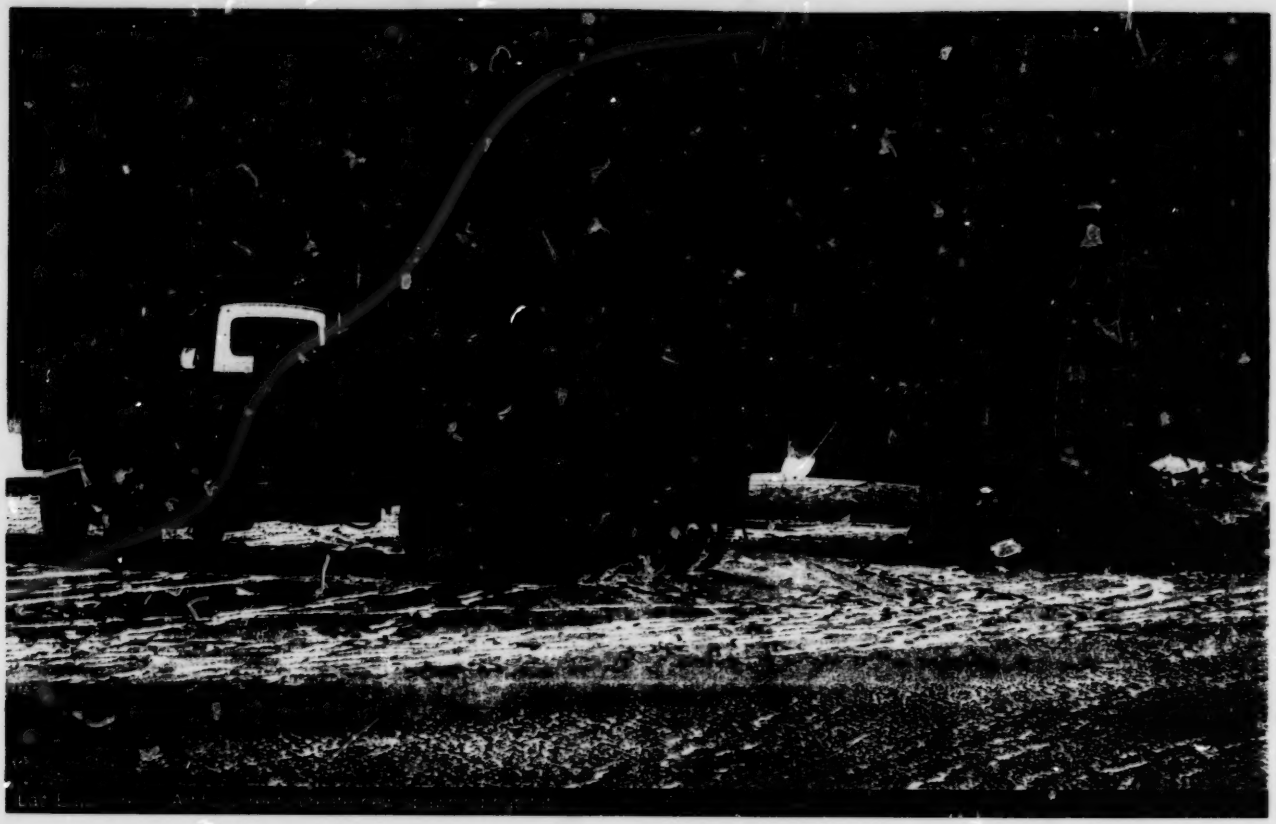
Morin (Devil's Lake) is located 10 kilometres west of Debden. It has a surface area of 2,481 hectares (approximately 6,028 acres) and a depth of 29 metres. The Park View Wildlife Federation, in co-operation with Fisheries Branch, added rock/rubble substrate to the lake to improve natural spawning success. Future assessments will determine whether or not fish used the spawning areas.

East Trout Lake

East Trout Lake (2,444 hectares, 6,037 acres) is located midway between Little Bear Lake and Montreal Lake. It is a deep sedimentary lake which supports a natural population of lake trout. Test netting indicated a decline in the trout population. To increase survival and hatching rates, rock was added to improve the spawning substrate on existing reefs.

Lac Eauclaire

Lac Eauclaire, north of Chitek Lake, is approximately 3.2 kilometres in length with a maximum depth of 37.3 metres. Although a lake trout population was established through a stocking program, suitable spawning areas were not available. Eleven artificial spawning reefs were installed during the period 1974 to 1978. Tests indicated trout were using the artificial spawning reefs and addition of new reefs would improve natural reproduction. Four locations were identified as suitable and the first of the four reefs was installed in the spring of 1989. The remaining three were installed in 1990.



Portable and Mobile Hatcheries

Hatcheries are intended to supplement fish populations or to replenish overexploited fish populations.

Portable Hatcheries

Small, portable field hatcheries are used to incubate and hatch fry for stocking new or improved fish habitat, or to compensate for inadequate reproduction. Two portable hatcheries were operated in 1989: Richardson Creek and Tobacco Creek.

Richardson Creek

Richardson Creek, located approximately 35 kilometres north of Morse, is the only tributary of Diefenbaker Lake which has suitable temperature and oxygen for rainbow trout spawning. The Kyle Wildlife Federation operated a portable hatchery for rainbow trout for the second year. In the first year, a hatching survival of 80 per cent produced 44,000 fry which were released into the creek. In 1989, the hatchery was expanded to accommodate 150,000 eggs. A hatching rate of 80 per cent produced approximately 120,000 fry, which were released into the creek. In 1991, the creek will be monitored to determine whether or not the released rainbow will return to spawn.

Tobacco Creek

Tobacco Creek, located 10 kilometres south of La Ronge, historically supported a large spawning run of walleye. Little natural reproduction now occurs. In 1987, the creek was used to test the feasibility of a portable hatchery in remote locations. The hatchery produced 144,000 walleye fry. In 1988, approximately 592,000 walleye fry were produced. This year the operation encountered cold weather which delayed hatching and reduced production. Three hundred and ninety thousand fry were produced and released into Tobacco Creek.

Mobile Hatchery

This hatchery is constructed on a trailer chassis and can be moved wherever road access exists. It is currently used to rear additional walleye fry for distribution in the central portion of the province. The hatchery is capable of incubating up to 18 million walleye eggs. In 1989, it was operated at Meadow Lake. Production for the last three years is outlined below:

Year	Eggs Incubated	Fry Produced
1987	15.6 million	8.9 million
1988	17.2 million	7.9 million
1989	15.6 million	9.9 million

VI Trout Fishery Development

A key objective of the fish enhancement program is to develop new trout waters. Only lake trout occur naturally in Saskatchewan. Rainbow, brook, splake and brown trout populations have all been established through stocking. Since limited trout habitat exists near major population centres and heavily used recreation sites, the fish enhancement program has been actively working to develop new waters. The intent is to diversify angling opportunities and create new sportfishing waters that are accessible to anglers.

Scissors Creek - Electroshocking determines feasibility and evaluates habitat improvement projects

Five trout fishery development projects were undertaken in 1989-90 at Buffalo Pond, Eagle Creek, Waldsea Pond, and at the towns of Luck Lake and Luseland.

Buffalo Pond

Buffalo Pond is located within Buffalo Pound Provincial Park, northeast of Moose Jaw. Buffalo Pound Lake is popular with anglers for walleye, northern pike and perch fishing. There is no trout fishing in the vicinity. A three-hectare (7.5 acre) trout pond is being developed to enhance sport fishing in the park. The project involves enlarging an old water supply reservoir. The pond will be stocked with rainbow trout in the spring of 1991.

Eagle Pond

Eagle Pond is 0.6 hectares (1.5 acres) in size and is situated within Eagle Creek Regional Park. The park is located 45 kilometres west of Saskatoon and is a popular recreational destination for residents of Saskatoon and surrounding area. The pond was constructed by the Eagle Creek Regional Park in the summer of 1989 to diversify angling opportunities for park visitors.

Armit River - Rock dams create shallow upstream and downstream scour pools

Waldsea Pond

Waldsea Lake, located within Waldsea Regional Park, 12 kilometres northwest of Humboldt, is a saline waterbody incapable of supporting fish. A trout pond was developed to provide angling opportunities for visitors to this popular regional park. The Waldsea Lake Regional Park Authority, the Waldsea Lake Cabin Owners Association and the Humboldt Wildlife Federation co-operated with Fisheries Branch to enlarge and deepen an existing dugout to make it suitable for a permanent fish population. The pond is 0.5 hectares (approximately 1.25 acres) in size, with a maximum depth of seven metres. A fish screen, filleting station, parking facility and fence were also supplied. Fifteen hundred rainbow trout fingerlings were stocked in September, 1990.

Luck Lake

Luck Lake is located approximately eight kilometres southwest of Birsay. In 1988, a 0.6-hectare (1.5 acre) borrow pit was constructed on the south side of Luck Lake by Ducks Unlimited and Fisheries Branch. The trout pond did not fill from natural runoff and required additional water to bring it to full supply level. A nearby irrigation line supplied water for filling the pond.

Luseland Pond

Luseland Pond is located 1.5 kilometres east of the town of Luseland and is accessible via Highway #31. Pond fishing opportunities in the Luseland area are non-existent. Construction of the trout pond consisted of deepening and enlarging an existing pit to about eight metres in depth and to 0.4 hectares (one acre) in size. The Luseland and District Wildlife Federation co-operated in the development of the project. In 1990, the pond will be landscaped, grassed and fenced.

VII Lake Rehabilitation

Some Saskatchewan lakes contain large numbers of non-gamefish which have little or no recreational value and compete with gamefish for food. Chemical rehabilitation of such lakes has two purposes: to diversify fishing opportunities by providing an alternate fishery, and to relieve angling pressure on nearby lakes. Three chemical rehabilitation projects were carried out in 1989-90, as follows:

Dorothy Lake

Dorothy Lake is located 100 kilometres north of Smeaton. To establish a brook trout fishery, Fisheries Branch, in co-operation with the Cub Hills Wildlife Federation, removed the stunted perch population and stocked brook trout.

McRobbie Lake

McRobbie Lake, 40 hectares (100 acres) in size, is located 13 kilometres south of Creighton. In order to establish a new trout fishery, the existing stunted perch population was removed with the assistance of the Creighton Wildlife Federation and local conservation officers. The lake will be stocked with rainbow trout in 1990.

Olson Lake

Olson Lake, 20 kilometres northeast of Spiritwood, is 42 hectares (105 acres) in size. In order to create a trout fishery in the area, Fisheries Branch, in co-operation with the Spiritwood Wildlife Federation, removed the existing sucker population before stocking rainbow trout.

VIII Fishways

Fishways enhance fish populations by improving or restoring access to spawning grounds. Obstacles in streams or rivers may deny fish access to their spawning grounds and seriously impair natural reproduction. These may be man-made obstacles such as dams and improperly sized culverts, or natural barriers such as waterfalls, turbulent stretches of water, fallen trees, rocks and debris. A fishway can provide an alternate route around an obstacle, or improve an existing route so that it is navigable for fish.

One fishway was constructed in 1989-90 at Siisiip.

Siisip Fishway

The Siisiip Fishway is located 30 kilometres west of Cumberland House, and was a co-operative effort between Fisheries Branch and Ducks Unlimited. The fishway provides access for northern pike and other species to spawning and rearing habitat in Siisiip Marsh. It is operated during the spring spawning run to allow fish to ascend into the marsh. During June, baffles for the fishway are removed, and it functions as a slide to allow adult postspawners to exit the marsh. In autumn, the fishway operates again as a slide to allow fingerlings to leave the marsh.

IX Trout Ponds

Catchable rainbow trout were stocked in ponds developed prior to 1988.

Trout Ponds

Name	Location	Area in Hectares/Acres	Number of Fish
Brightsand Pond	Brightsand Pond Regional Park	1.2 hectares (3 acres)	1,000
Candle Pond	Candle Lake Provincial Park	2.4 hectares (6 acres)	3,500
Loch Leven	Cypress Hills Provincial Park	10.4 hectares (26 acres)	2,727
Nisbet Pond	10 kilometres NW of Prince Albert	1.0 hectares (2.47 acres)	2,350
Yearling cutthroat trout were stocked in two locations in the third year of a three-year experiment. An evaluation of stocking success will take place in 1990-91.			
Little Raspberry Lake	Meadow Lake Provincial Park	81 hectares (200 acres)	8,200
Shirley Lake	18 km SE of Dore Lake	50 hectares (124 acres)	10,000

1989-90 Financial Summary *

(Fish Enhancement Component)

I Summary

Total Revenue	$887,280	
Total Expenditures	789,800	
Revenue over Expenditures		**$97,480**

II Funds Available

Revenue:		
Licence Fee Impost	$810,090	
Interest	64,190	
Mitigation	4,000	
Total Revenue		$887,280
Carry-over from 1989-90		409,590
Total Funds available		**$1,296,870**

III Expenditures

Permanent & Part-time Staff	$ 140,470	
Lake Reclamation	83,840	
Stream Habitat Improvement	83,420	
Trout Fishery Development	69,370	
Rearing Pond Operation	61,380	
Stream Habitat Assessment	60,860	
Lake Aeration	60,000	
Rearing Ponds	56,020	
Communications	33,950	
Fish Stocking	29,400	
Small Equipment, Supplies & Repairs	26,320	
Fishways	25,000	
Spawn-taking	23,680	
Temporary Staff	18,560	
Reconnaissance & Feasibility	17,530	
Total Expenditures		**$ 789,800**

IV Balance

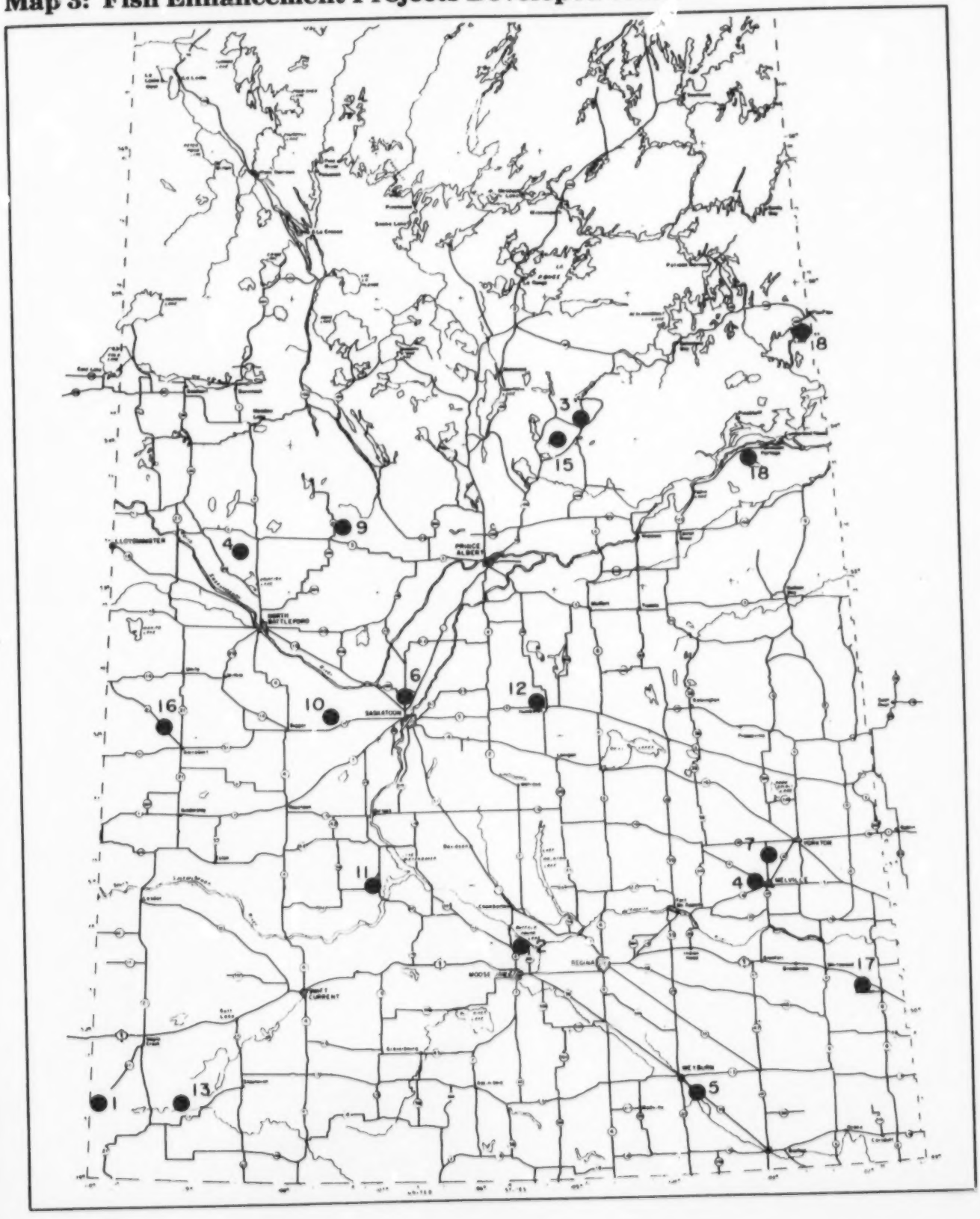
$ 507,070

*** Unaudited Figures**

Fish Enhancement Projects Developed 1989-90 (Map 3)

Name	Location	Project Type	Map Location
Battle Creek	Cypress Hills Inter-provincial Park West Block	Habitat Improvement	1
Buffalo Pond	Buffalo Pound Provincial Park	Trout Pond	2
Dorothy Lake	100 km N of SmeatonLake	Rehabilitation	3
Melville Reservoir	2 km NW of Melville	Aeration	4
Nickle Lake	7 km SE of Weyburn	Rearing Pond	5
Waldheim	Pond Valley Regional Park, Waldheim	Aeration	6
Wilson Lake	10 km SW of Springside	Aeration	7
McRobbie Lake	13 km S of CreightonLake	Rehabilitation	8
Olson Lake	20 km NE of Spiritwood Lake	Rehabilitation	9
Eagle Creek	45 km W of Saskatoon	Trout Pond	10
Luck Lake	8 km SW of Birsay	Trout Pond	11
Waldsea Pond	12 km NW of Humboldt	Trout Pond	12
Fairwell Creek	30 km W of Eastend	Habitat Improvement	13
Jackfish Creek	10 km SW of Glaslyn	Habitat Improvement	14
Lost Echo Creek	120 km NE of Candle Lake	Habitat Improvement	15
Luseland Pond	1.5 km E of Luseland	Trout Pond	16
Wapella Reservoir	Wapella	Habitat Improvement	17
Siisiip	30 km W of Cumberland House	Fishway	18

Map 3: Fish Enhancement Projects Developed 1989-90



Summary:

Development, Operation and Maintenance of Fish Enhancement Projects 1989-90 (Map 4)

Name	Location	Project Type	Map Location
Struthers Lake	SE of Birch Hills	Aeration	1
Steistol Lake (Hill Lake)	Greenwater Lake Provincial Park	Aeration	2
Picnic Lake	NW of North Battleford	Aeration	3
Clearwater Lake	N of Swift Current	Aeration	4
Birch Lake	Moose Mountain Provincial Park	Aeration	5
Lawlered Lake	NW of Ituna	Aeration	6
Scott Reservoir	SW of Wilkie	Aeration	7
Condie Reservoir	NW of Regina	Aeration	8
Oyama Reservoir	SE of Regina	Aeration	9
Lady Lake	N of Preeceville	Aeration	10
Little Jackfish Lake	Duck Mountain Provincial Park	Aeration	11
Melfort Reservoir	SE of Melfort	Aeration	12
Nesland Lake	W of Shellbrook	Aeration	13
Helene Lake	NE of Glaslyn	Snow Removal	14
Moosomin Reservoir	S of Moosomin	Snow Removal	15
Twin Lake	E of North Battleford	Snow Removal	16
Kenosee Lake	Moose Mountain Provincial Park	Rearing Pond	17
Rowan's Ravine	Rowan's Ravine Provincial Park	Rearing Pond	18
Shore Pond	NE of Big River	Rearing Pond	19
Codette Pond	N of Melfort	Rearing Pond	20
Glaslyn Pond	N of Battleford	Rearing Pond	21
Jackfish Pond	N of North Battleford	Rearing Pond	22
Meadow Pond A & B	Meadow Lake Provincial Park	Rearing Pond	23
Lake Lenore	N of Humboldt	Rearing Pond	24
Brightsand Pond	Brightsand Lake Regional Park	Trout Stocking	25
Candle Pond	Candle Lake Provincial Park	Trout Stocking	26
Nisbet Pond	NW of Prince Albert	Trout Stocking	27
Loch Leven	Cypress Hills Provincial Park	Trout Stocking	28
Shirley Lake	S of Dore Lake	Trout Stocking	29
Little Raspberry Lake	NW of Meadow Lake	Trout Stocking	30
Richardson Creek	N of Morse	Portable Hatchery	31
Meadow Lake	Meadow Lake Provincial Park	Mobile Hatchery	32
Tobacco Creek	S of La Ronge	Mobile Hatchery	33
East Trout Lake	N of Candle Lakes	Habitat Improvement	34
Lac Eauclaire	N of Chitek Lake	Habitat Improvement	35
White Gull Creek	NE of Candle Lake	Habitat Improvement	36
Bone Creek	N of Eastend	Habitat Improvement	37
Swan River	S of Hudson Bay	Habitat Improvement	38

Map 4 Fish and Wildlife Development Fund Fish Enhancement Projects